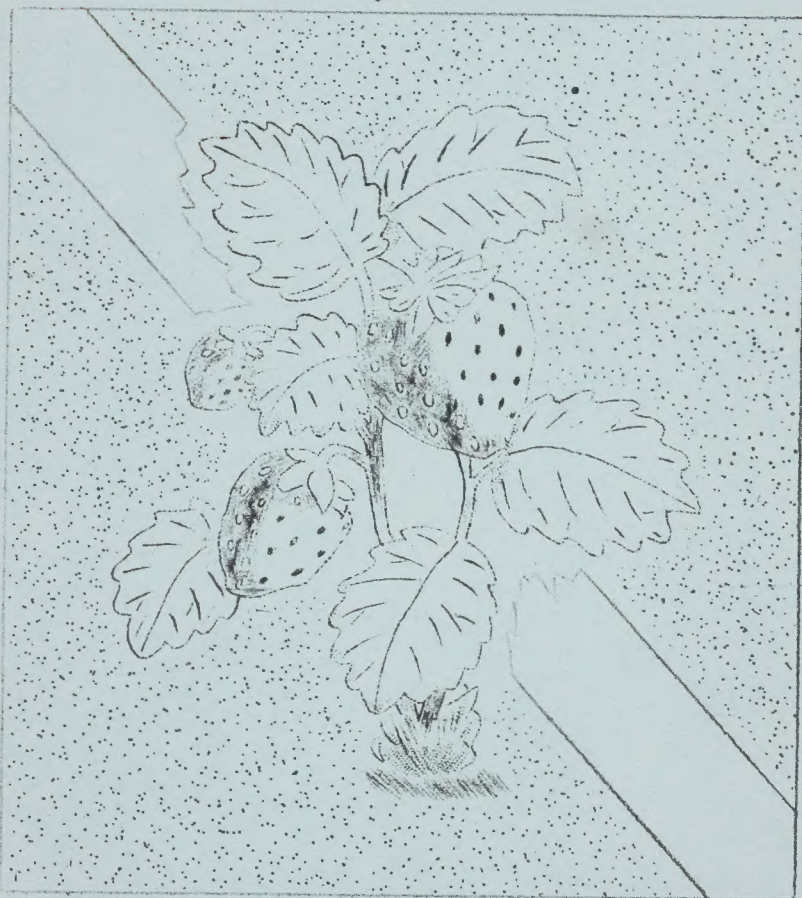


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District Agriculturist
SPIRIT RIVER, Alberta.

CULTURE OF STRAWBERRIES
IN THE PEACE RIVER DISTRICT



Dominion Experimental Station,
Beaverlodge, Alberta.

CULTURE OF STRAWBERRIES IN THE PEACE RIVER DISTRICT

SHELTER AND SITE: Strong prevailing winds coupled with relatively low growing temperatures necessitates adequate shelter from the west and south-west for most successful production. A uniform slope to the northeast is probably best for more uniform moisture supply and for water and frost drainage.

SOIL: Although strawberries can do well in properly prepared prevailing soils of the Peace River district, a light-textured soil is best since it does not pack and bake. It is desirable that this soil have a high organic matter content.

SOIL PREPARATION: This phase of strawberry production is extremely important under local conditions. Thorough summerfallowing in the year prior to planting is necessary to remove weeds. Strawberry plants are shallow-rooted and heavy feeders of nitrogen hence heavy applications of manure are made in the summerfallow year. This process also builds up the organic matter content which is essential in increasing moisture retention to carry the plants over the production period during which drought is often experienced. Chemical fertilizers are beneficial in the preparation of a planting but they will not take the place of manure and other organic materials.

A newly discovered practice consisting of heavy applications of moss peat promises to give outstanding results. In several district plantings where moss peat was incorporated into the soil the plants were vigorous and extremely well-rooted. They resisted drought well and winterkilling was negligible under severe conditions. High yields were produced and in the case of ever-bearing varieties, the bearing season was prolonged well into the autumn.

Best results are obtained if the strawberry planting is allowed to fruit one year since old plants do not produce well and weed competition becomes great. In this case, a three-field rotation is required. It is possible that under good soil conditions and chemical weed control practices the plantation may be left to fruit another year in which case four fields are necessary. Rotational practice is indicated in the following diagrams:-

V - vegetables; S - summerfallow; P - year of planting;
1 - first year fruiting; 2 - second year fruiting.

		Field					Field			
		1	2	3			1	2	3	4
Y e a r	1	S	V	V	Y e a r	1	S	V	V	V
	2	P	S	V		2	P	S	V	V
	3	1	P	S		3	1	P	S	V
	4	S	1	P		4	2	1	P	S
						5	S	2	1	P

PLANTING: It is best to set the plants out as early in the spring as possible before active growth begins. By becoming well established early in the season they are able to set good stands of healthy runners prior to severe autumn conditions which may cause winterkilling. Early August planting may be done if moisture conditions are good but there is little to be gained by this practice since production will not begin the following year except with everbearing varieties.

Depth of planting is most important and care must be taken to set the middle of the crown in line with the surface of the soil. The crown must not be covered nor should the roots be exposed.

The matted-row system of culture, as opposed to the hill system, is accepted in Alberta and is particularly suited to the Peace River district. Winterkilling would leave many spaces in the latter system and would therefore tend to lower yield accordingly. Plants are set $1\frac{1}{2}$ to two feet apart in rows spaced four or more feet apart. Runner plants are established approximately five inches from one another and a matted row 18 inches to two feet wide is permitted to form. It should be kept in mind that these are the plants that will produce fruit the following year, hence their early establishment is beneficial.

WINTER PROTECTION: Mulching is necessary to provide winter protection and wheat or rye straw free from weeds is the most commonly used material. Slough hay is also used as it is weed free. The mulch should be applied after the first series of light freezes when it is felt that continuous thawing conditions will no longer be experienced. Another rule of thumb is to apply the mulch when the ground is frozen sufficiently to carry the wagon. The straw is applied over the whole plantation and should be three inches thick when settled.

Other mulching materials which have proven to be very valuable are shavings and sawdust; they are applied to a depth of three inches over the plants only. These media are weed-free, keep down weed growth and assist greatly in preventing moisture losses from the soil by evaporation. They are also superior as insulation and will delay spring growth more effectively than straw. When shavings are worked into the soil following the usefulness of the plantation, about 2.3 pounds of ammonium nitrate per 1000 square feet should be applied to assist the bacteria in the decomposition of the shavings.

Mulches should remain on the plants as long as possible to delay growth and therefore overcome spring frost damage to blossoms. However, if the mulch is allowed to remain too long the tender shoots may be damaged by the wind and sun. The method of handling mulches in the spring will depend on the method of culture employed. If irrigation is not practiced the best procedure is to move most of the straw or hay to between the rows. More clean straw should be added to form a layer eight inches thick. This heavy mulch will help retain soil moisture well and will reduce weed growth markedly. The same procedure will apply to the use of shavings except that a two-inch layer is sufficient between the rows.

WEED CONTROL: This phase of strawberry culture requires much vigilance which pays good dividends. Cultivation and weeding should be timely to remove weeds, particularly dandelions, in the seedling stage. This operation is facilitated by the use of a large knife.

Several chemicals, 2,4-D and SES, can now be safely recommended for weed control in strawberries, although further experience is desirable to survey all aspects of their use under Peace River conditions.

2,4-D may be used in most stages of growth except during runner initiation in the early summer and fruit bud formation from mid-August to October. SES (commercially known as Crag Herbicide No. 1) is a newcomer in this field of weed control and is many times safer than 2,4-D because it acts through the soil. This herbicide becomes toxic only after it undergoes certain changes in the soil which take place as a result of micro-organic activity. IT IS EFFECTIVE AGAINST WEEDS IN THE GERMINATING STAGE AND MUST THEREFORE BE APPLIED TO CLEAN GROUND AHEAD OF WEED SEED GERMINATION. The following weed control spray program for both herbicides is suggested. All references to rates of application are on the basis of acid equivalent.

2,4-D

New Plantings: 4 to 6 pounds (amine salt) per acre or 1.5 to 2.5 ounces per 1,000 square feet applied as a pre-emergence treatment to prepared soil just before planting.

A foliage treatment may be made a few weeks after setting, if necessary, otherwise treatments should be delayed from the time that runner plants are setting to mid-August. A suggested rate of application is one pound (ester preferred) per acre or one-half-ounce per 1000 square feet.

Fruiting Fields: One pound of 2,4-D (amine salt) per acre applied at the time of mulch removal.

One pound of 2,4-D (ester) per acre just before ripening if necessary.

Above treatment repeated not later than August 15 if necessary and if the field is to be retained for another year's production.

SES

New Plantings: 3 to 6 pounds per acre (1.1 to 2.5 ounces per 1000 square feet) applied a few days after planting but before weeds germinate.

Repeat applications made at three or four week intervals. Last treatment may be made in September ahead of fall germinating seeds.

Fruiting Fields: 5 pounds per acre (1.8 ounces per 1000 square feet) applied at mulch removal.

Second application may be made as blooming begins if field is foul. Apply 4 pounds per acre (1.5 ounces per 1000 sq. ft.).

Apply 4 to six pounds per acre (1.8 to 2.5 ounces per 1000 sq. ft.) immediately after harvest. (2,4-D is probably more satisfactory at this time).

Repeat applications made at 3 to 4 week intervals as in new planting.

The spray programs outlined above for either one chemical may not be sufficient and it may be necessary to make combinations in the program to achieve best results.

IRRIGATION: One of the most serious drawbacks to strawberry production in the Peace River district is drought conditions at the time of fruiting. Moisture conservation practices such as mulching are therefore most important and where irrigation from dugouts, streams, etc., is possible this practice will boost yields markedly.

Where irrigation is practiced, mulching heavily between the rows is not possible and the rows should be at least six feet apart. Clean cultivation is practiced between the rows and a ditch about eight inches deep is made to distribute the water. Where water from wells is utilized, one should be certain that excess salts will not harm the plants.

Irrigation should begin about June 15 when conditions are usually dry and care should be taken that the planting has plenty of water during the production season. Water is not usually required later except in the case of everbearing strawberries when an irrigation will assist in maturing a fall crop. Over-watering at this time of year should be cautioned against since it will prolong autumn growth and increase danger of winter killing.

FERTILIZERS: Nitrogenous fertilizers are mostly used in other parts of Canada to assist establishment of plants to stimulate formation of fruit buds in the fall. In addition, nitrogen may prolong autumn growth. It is felt, however, that 11-48-0 (a phosphate fertilizer) applied at the rate of 2.5 pounds per 1000 square ft. at the time of runner setting will assist in rooting. It is also suggested that 5 pounds of 11-48-0 applied when flower buds are emerging would increase fruit yields.

DISEASES: The most serious diseases are caused by viruses and are of a degenerative type which cause deterioration in yields without pronounced symptoms on the plants. The only symptoms are a slight to moderate dwarfing of the plants, a slight yellowing and distortion of the new leaves and a slight to moderate reduction in runnering with shortened stolons. The only means of control is to change the stock when infection is believed to be present and to purchase high quality stock from a reputable nursery firm. It is probable that many gardeners have experienced failures without realizing the actual cause.

VARIETIES: Careful consideration must be given to choice of adaptable varieties since hardiness and drought resistance are very important in the Peace River district. Senator Dunlap is the best of the summer-bearing varieties. It is hardy, productive and of good quality. Northerner and Gem are the best ever-bearing varieties tested to date. The former variety is hardy and of high quality; it will produce a light crop in the early summer and a good crop again in August. Gem produces a fair crop of runners and is most useful for its summer crop since its autumn crop is usually somewhat late in maturing.

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